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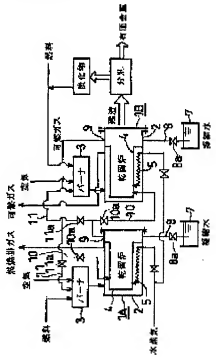
(54) TREATING DEVICE FOR PLASTIC-METAL COMPOSITE MATERIAL

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a treating device for plastic-metal composite material which can save fuel and significantly reduce the quantity of a waste.

SOLUTION: This treating device thermally decomposes the plastic or rubber of a waste plastic- or rubber-metal composite material by heating the waste in dry distillation furnaces 1A and 1B maintained in superheated steam atmospheres, and recovers an unoxidized metal. The dry distillation furnaces 1A and 1B are successively switched to each other for operation and the holding heat of the waste gases from the furnaces 1A and 1B are utilized for preheating the next operated furnaces 1B and 1A.



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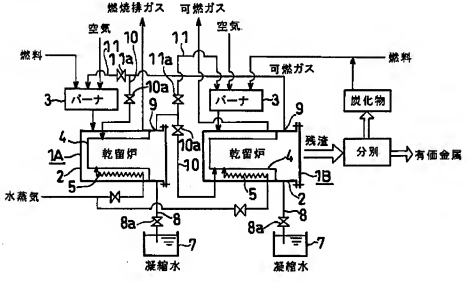
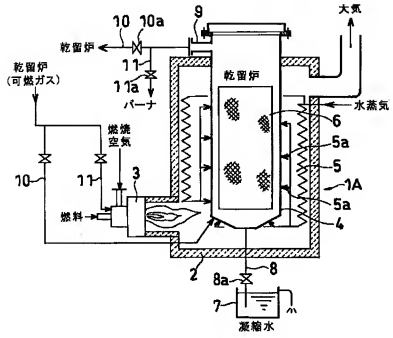
DRAWINGS

[Drawing 1]



[Drawing 2]



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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention]This invention relates to the processing unit of the plastic metal composite which collects valuables from the composite of the plastic or rubber, and metal by which it is generated from automotive parts industry, a household appliance, OA, electronic industry, etc.
[0002]
[Description of the Prior Art]The "disposal method of waste rubber metal composite", etc. currently indicated by "the processing unit of a waste plastic composite material" currently indicated by JP,10-204444,A and JP,11-76978,A as the device which processes such composite, or a method is known.
[0003]
[Problem(s) to be Solved by the Invention]According to the above-mentioned device or the method, good metal without oxidation / presentation deterioration is collected, and it has simultaneously the advantage of utilizing a plastic or rubber effectively, but since energy great for processing is needed, reduction of fuel has been a big technical problem. Since the residue which remains after collecting valuables is thrown away as waste, it has been a technical problem with new reduction of this waste.
[0004]The purpose of this invention is to provide the processing unit of the plastic metal composite in which reduction of fuel and the great reduction of waste volume are possible.
[0005]
[Means for Solving the Problem]A processing unit of plastic metal composite by this invention, Waste of composite of a plastic or rubber, and metal is heated under superheated-steam atmosphere with a dry distillation furnace, It is a processing unit of plastic metal composite which collects valuables from composite, these two or more dry distillation furnaces are

formed, change operation of every one set of these dry distillation furnaces is carried out one by one, and potential heat of exhaust gas from a dry distillation furnace under operation is used for preheating of waste dry-distilled next.

[0006]It is easy to be natural even if an inorganic material is included in composite.

[0007]300 ** - 800 ** of dry distillation furnace treatment temperature shall be 450 ** - 600 ** preferably.

[0008]It is preferred for carbide to be picked out from a residue thing which remains after collecting valuables from composite, and to be used as auxiliary fuel of a dry distillation furnace. Thereby, reduction of fuel can be aimed at while waste volume is reduced substantially.

[0009]It is more preferred that the exhaust gas emitted during dry distillation is used for heating of a dry distillation furnace and superheated steam. In this case, exhaust gas is cooled, a water-of-condensation steam is removed, and obtained noncondensable gas is used for heating. Thereby, reduction of fuel can be aimed at further.

[0010]

[Embodiment of the Invention]This embodiment of the invention is described with reference to drawings below.

[0011]As shown in drawing 1, the processing unit of the plastic metal composite by this invention has two sets (1A) of the dry distillation furnace = 1st dry distillation furnaces, and the 2nd dry distillation furnace (1B). Each dry distillation furnace (1A) (1B) is what heats the waste of the composite which consists of metal containing a plastic or rubber, metal, or an inorganic material with superheated steam, The heating furnace (2) which equipped the lower end 1 side with the burner (3) as shown in drawing 2 in detail, The steam heating room (5) established in the outside of the melting iron pot (4) arranged in a heating furnace (2), and the melting iron pot (4) in the shape of a jacket, It mainly comprises a descending pipe with a valve (8a) (8) formed in the bucket (6) stored in the inside of a melting iron pot (4), the water-of-condensation receiver (7) installed under the melting iron pot (4), and the pars basilaris ossis occipitalis of the melting iron pot (6) at drooping state.

[0012]A melting iron pot (4) is a drum-like, and has a pars basilaris ossis occipitalis of cone shape. A bucket (6) is vertical ellipse tubed and comprises a wire gauze or a perforated plate. Two or more vapor nozzles (5a) which penetrate the peripheral wall of a melting iron pot (4) from the same room (5), and tend toward the center of a bucket (6) are allocated in the steam heating room (5) which carries out the mantle of the melting iron pot (4). The lower end part of a descending pipe (8) is immersed in underwater [in a water-of-condensation receiver (7)].

[0013]In the upper bed part of the melting iron pot (4) of each dry distillation furnace (1A) (1B). The 1st communicating tube with a valve (10a) (10) that the flammable gas exhaust pipe (9) is formed and leads to the melting iron pot (4) of the dry distillation furnace (1A) (1B) of another

side from this flammable gas exhaust pipe (9), The 2nd communicating tube with a valve (11a) (11) that leads to the burner (3) of the dry distillation furnace (1A) (1B) of another side has branched.

[0014]In each dry distillation furnace (1A) (1B), the pyrolysis of a plastic or the rubber is carried out, they serve as flammable gas, and are extracted from a flammable gas exhaust pipe (9). While proper fractionation treatment is performed to the residue which remains in the 1st and 2nd dry distillation furnaces (1A) (1B) and parts for metal are collected, incombustibles, such as an inorganic material which does not carry out a pyrolysis, are removed. In this way, valuables, such as metal of flammable gas and a non-oxidation state, are collected from composite, and residue = carbide is further supplied to the burner (3) and (3) of each dry distillation furnace (1A) (1B) as fuel.

[0015]In the processing unit of the plastic metal composite which has the above-mentioned composition, while it switches by turns, and is operated and the 1st dry distillation furnace (1A) is working, the 2nd dry distillation furnace (1B) finished operation, and has stopped two dry distillation furnaces (1A) (1B). The exhaust gas from the 1st dry distillation furnace (1A) that is working is sent to the melting iron pot (4) of the 2nd dry distillation furnace (1B) via the 1st communicating tube (10), and, thereby, the waste dry-distilled next with the 2nd dry distillation furnace (1B) is preheated. On the other hand, the water of condensation of the steam in exhaust gas is discharged by the water-of-condensation receiver (7) with a descending pipe (8). The exhaust gas of the 2nd dry distillation furnace (1B) is sent to the burner (3) of the 1st dry distillation furnace (1A) via the 2nd communicating tube (11), and is used as this auxiliary fuel. Therefore, the 2nd dry distillation furnace (1B) preheated during the pause shifts to a steady operation state in short rise time, when switched to operation mode. In this way, useless operation which is not is repeated, without throwing away energy. The dry distillation furnace which these are operated by turns when there are two dry distillation furnaces (1A) (1B), and is operated one set at a time one by one, and then is operated as mentioned above when there are three or more sets is preheated.

[0016]

[Effect of the Invention]Since the potential heat of exhaust gas is used for preheating of the waste dry-distilled next according to the processing unit of the plastic metal composite of this invention, it becomes reducible [fuel].

[Translation done.]